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China and global internet governance: toward an alternative analytical framework

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Drawing on historical methods, this study assesses the conventional "cyber-sovereignty" framework, which has been used to capture and interpret China's stance toward global Internet governance. This framework focuses on political control and tends to reduce China's policies to the attempts by an authoritarian state to elevate governments and intergovernmental organizations to be the only legitimate governors of global cyberspace. As it traces the evolution of China's relationship with the global Internet in the past three decades, the study demonstrates that China's stance is more complex than the prevalent framework allows and that it is both built upon and different from the US-centric, market-oriented Internet governance scheme. This study recognizes the inadequacy of the conventional framework and invokes a theory of critical political economy of communication, thereby offering an alternative model to explicate the complex power dynamics behind China's changing strategies. The alternative model advanced in this study is based on the understanding of China's evolving approach as the product of multifaceted interactions among a group of power-holders that include both state agencies and business units on the transnational level.

Keywords: China; history; global Internet governance; technical standardization; Internet resource allocation; Internet policy

Introduction

As more human communication moves online and as the Internet intertwines with once-separate media systems, policymaking for the global Internet has begun to interact – sometimes behind the scenes – with a much wider range of research questions and specialty fields in communication. Questions about how to govern this unprecedentedly versatile and expansive communication system – questions of "global Internet governance"[1] – not only possess widening research significance. They also have acquired a rising political prominence, as serious controversies have erupted. At the 2012 World Conference on International Telecommunications (WCIT-12), 89 attending countries openly challenged the existing governance scheme and called for placing the Internet under the jurisdiction of the United Nations (UN) affiliate, the International Telecommunication Union (ITU). Struggles over Internet policy have escalated to the extent that some observers have termed the situation the "Digital Cold War" (Crovitz, 2012).

A leading country in the "ITU camp" is China. With the world's largest online population of 649 million (CNNIC, 2015) and a thriving information and communication technology (ICT) industry, China has become a vital player in global cyberspace. Often perceived as a repressive authoritarian regime that seeks to cultivate an inward-looking national "intranet," China is now progressively projecting its power outward in this sphere. This

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process has prepared China to assume the role of a major participant, even a formulator, in the ongoing debate about global Internet governance.

How may we understand China's approach to global Internet governance? Based on a normative liberal position, many have sought to posit variants of what may be called the "cyber-sovereignty" framework. Largely concerned with China's repressive Internet control domestically, this conventional framework foregrounds the role of the authoritarian Chinese state in attempting to govern the extraterritorial Internet. Confrontation between China and the United States over global cyberspace in turn may be cast in terms of a state-centric model versus a more private multi-stakeholder model[2]. Although it offers important insight into one aspect of China's motivation, the "cyber-sovereignty" framework focuses primarily on political control and generally tends to reduce China's complex and contradictory position to that of a heavy-handed state motivated to elevate governments and intergovernmental organizations as the only legitimate governors of the global Internet. This position is then often counterpoised to the preference of US-centric policy for a borderless Internet that should remain as free from government control as possible. In short, the debate centers on Chinese "Internet sovereignty" versus American "Internet freedom" (Liu, 2012).

This dichotomy, as scholars have argued, obscures more than it reveals about the geopolitics of the Internet (Schiller, 2011; Zhao, 2010). Recent scholarship on global Internet governance has begun to acknowledge the complexity of China's approach. In a wide-ranging analysis of how the global south countries negotiated Internet-related issues at the World Summit on the Information Society (WSIS), Bhuiyan (2014) observed deep ambiguities in China's policy stance. Indeed, in some cases, China acquiesced to the US. These recent developments call for a comprehensive historical and theoretical examination of China's evolving approach. In this regard, the previous literature on China's telecommunications industry has contributed to our knowledge of the intricate institutional configuration of China's policy formulation process (Xia, 2012a, 2012b). For example, Xia (2012b) offered a valuable model that could be used to identify the institutional forces that shape the competition and regulation of China's emerging mobile 3G/4G industry, including political–economic dispositions, industry supervisory architecture, industry cultural norms, organization of interests, and public opinion. This study extends these valuable insights to the area of global Internet governance. By using a critical political–economic perspective, the current study is also distinct from this strand of the literature because it underscores the uneven power distribution in policy formulations that are organized around state and capital entities. The critical political economy approach to media policies aims to "ruthlessly scrutinize these policies, expose their contingencies and contradictions" and "emphasize the power structures that produce any given media system" (Pickard, 2013, p. 412). A central question is at issue: when ICTs and China have constituted "two poles of growth" in today's transnational capitalism, who will command those poles of growth, for whom, and for what purposes? (Schiller, 2014).

The aim of this study is therefore twofold. First, by offering a historical examination of the frictions and adjustments between China and the global Internet in the past three decades, it tests the adequacy of the "cyber-sovereignty" framework to capture and interpret China's approach. The historical analysis offered here demonstrates that it is no longer sufficient to characterize China's approach as rooted only in heavy-handed state interventionism. Second, recognizing the inadequacy of the conventional framework and building on the previous research on China's telecommunications industry, this study proposes an alternative model that can be used to understand and critically interrogate the power dynamics in the evolution of China's strategies with regard to the global Internet, thus

foregrounding the multifaceted interactions among different state agencies and business units on a transnational level.

The following research questions are addressed. How may we historically contextualize China's position toward global Internet governance? What forces have propelled this evolution? How have they interacted with one another? Does the "cyber-sovereignty" framework adequately capture and explain China's evolving approach, and, if not, what might be offered in its place?

The study divides the historical process into three phases that are based on two landmark events. The first is the World Summit on the Information Society from 2003 to 2005, which marked the first open confrontation between China and the prevailing Internet governance system at a global policymaking forum (Bhuiyan, 2014). The second is the conflict between China and Google in 2010, which not only produced China's first Internet White Paper but also provoked the public's awareness of "the geopolitics of the Internet" (Schiller & Sandvig, 2010).

The remainder of the article is organized as follows. The next section introduces the theoretical and methodological approaches used in this study. The third section examines China's initial network building before the WSIS in 2003 when state agencies took the paramount position and introduced contradictory elements into governmental policy. I then discuss China's experimental efforts to rebalance the governing structure of the global Internet from the WSIS until 2010. In this stage, domestic business players started to claim an increasingly significant role, and they actively interacted with state agencies and other units of capital, both inside and outside China. The fifth section explicates how a proactive and sophisticated Chinese approach emerged after the 2010 "Google versus China" episode, which was carried forward to the ITU meeting, WCIT-12, and beyond. During this period, domestic corporate actors assumed increasing power over the state's Internet policymaking, and the state took a more assertive role with respect to global Internet governance. The article concludes by highlighting that the above changes were products of complex interactions among different state agencies and business units, both domestic and international. It also discusses the contributions and limitations of this study.

Theoretical framework and methods

This study draws on the theoretical framework of the critical political economy of communication, which foregrounds the mutual constitution of social relations, especially power relations, and the "production, distribution and consumption of resources, including communication resources" (Mosco, 2009, p. 2). Critical political economy posits that network technologies are not "technologies of freedom" (De Sola Pool, 1983), but political–economic constructions and therefore policymaking for communication technologies needs to be situated and analyzed within prevailing social power relations (e.g., Schiller, 1969; Smythe, 1981). This theoretical framework prioritizes the relationship between the development and governance of the Internet and the reconfiguration of global capitalism (McChesney, 2013; Schiller, 2014). As Schiller argued, the escalating geopolitical–economic controversy over Internet governance is a chief feature of the wide inter-capitalist struggle to appropriate the strategically vital ICT industry, which is "a rare pole of profitable growth" in today's capitalist political economy (Schiller, 2014, p. 146). This conceptualization considers Internet governance a site of not only political control and geopolitical struggle, but also capitalist construction. This perspective is particularly relevant to China. As Zhao (2010) reminded us in her case study of the China Next Generation Internet Project, the evolution of the Internet in China has been shaped by not only the

state but also corporate power. It is possible, however, that neither the "Chinese state" nor "corporate China" is monolithic. Moreover, the relationship between state and corporate actors is further complicated by China's accelerated global integration.

Drawing on the framework of critical political economy, the study then explores the interlocking power relations between capital and the state in shaping China's strategies to achieve global Internet governance. It argues that China's approach can be best understood as the result of multifaceted power interactions among a group of power-holders, including different state agencies and business units on a level that is transnational in scope. The chief actors for the state include economic agencies, notably, the Ministry of Industry and Information Technology (MIIT); political and ideological units, including the State Internet Information Office (SIIO); and military departments led by the People's Liberation Army (PLA). On the side of capital, several different actors are prominent. Internet application and service providers such as Alibaba, telecommunications equipment manufacturers such as Huawei, network operators such as China Mobile, and major corporate network users are all centrally involved. China's policy formation process also extends beyond national considerations to interact with foreign government agencies, transnational corporations that invest in or trade with China, and organizations with supranational responsibilities.

The alternative model proposed here contributes to the existing literature in three ways. First, it recognizes that both the state and capital have been critical in constructing China's approach, and it breaks down the monolithic category of the "state" and "capital" into different state agencies and business units in order to identify the key power-holders in each category. Second, rather than merely emphasizing one aspect of the complex state–capital relations, it underscores the multifaceted nature of this relationship, which encompasses both conflict and cooperation. Third, instead of attempting to identify a mechanical or static formula, the chosen analytical framework situates these interactions both on a transnational level and within a contingent historically unfolding process. This framework permits us to see that China's approach to Internet governance over the past three decades has been shaped and reshaped as a product of these power dynamics (see Figure 1).

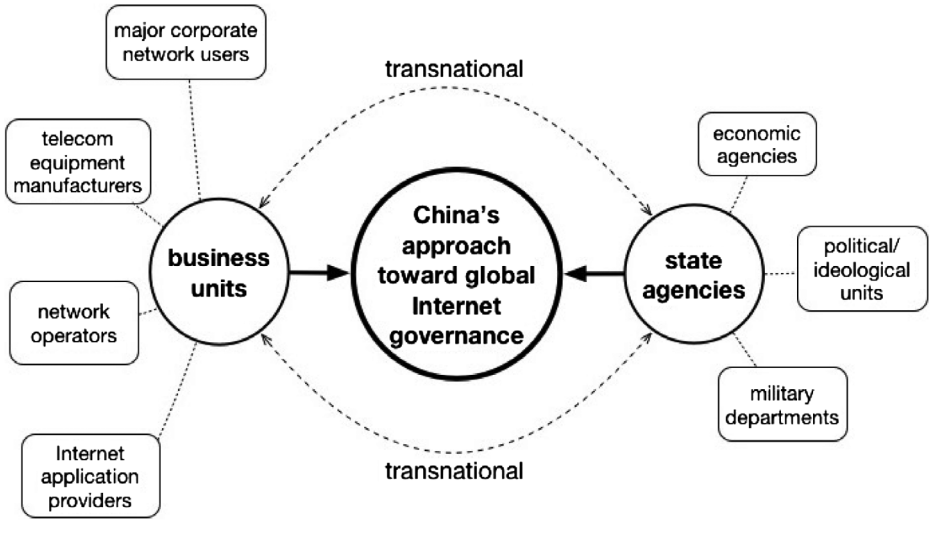

Figure 1. The proposed alternative analytical framework.

The historical approach undertaken in this study is the cornerstone methodology of the critical political economy of communication (Mosco, 2009). Within this critical tradition, Pickard (2011) demonstrated the importance of historical methods for critical media policy studies through his two-layer historical analysis of media reform in the US during the 1940s. The first step involves the analysis and synthesis of related secondary accounts in order to place the policy discourse in a historical context. Building on the knowledge gained in the first step, in the second step, primary sources, such as personal letters and policy memos, will be analyzed. Following Pickard's approach, I perform two levels of historical examination in this study by using sources in both the English and Chinese languages. First, I systematically review trade journals, news articles, and the secondary literature on China's Internet history to trace its engagement with the extraterritorial Internet. Second, informed by these resources, I locate and analyze relevant primary sources, including government reports, state documents, national statistical compendia, and conference documents issued by both the WSIS and the WCIT-12, focusing on those submitted by the Chinese delegation.[3]

The following analysis is based on these two levels of historical examination. Each section is organized around three critical functions of Internet governance, which have been proven useful to other scholars in analyzing the Chinese situation (Liu, 2012).[4] The first of these functions involves technical standardization, decision-making about the Internet's fundamental "networking protocols, software applications and data formats"; the second concerns the allocation and assignment of critical Internet resources such as domain names and Internet Protocol (IP) addresses; and the third focuses on public policy, or "policy formulation, policy enforcement and dispute resolution" for the Internet (Mathiason, 2008, pp. 17–18).

1987–2001: early interaction with the global Internet

"Across the Great Wall we can reach every corner in the world": this was the first email sent through an indigenous Chinese server to the global Internet in September 1987 (CNNIC, 2012). This contrasted the assumptions of many Western observers that the *only* aim of China's early network construction was to build a nationwide "Chinternet" that would be detached from the international network. It should also be noted that the political concerns of the US partly delayed China's full connection to the global Internet until 1994 (CNNIC, 2012). China's initial engagement with the extraterritorial Internet was indeed shaped by these two interconnected forces: the strong will of reform-minded state leaders to re-enter the international system and a complex and swiftly altering geopolitical–economic power structure.

Domestically, in order to solve the political instability and legitimacy crisis that afflicted the party-state after the 1989 movement, the Chinese leadership adopted new hardline policies to interact with transnational capital (Wang, 2003). In 1992, Deng Xiaoping's Southern Tour further opened China's domestic market. This continuing process of global market integration brought in a swath of transnational corporations, which pressed for modernized telecommunications services and advanced information networks (Hong, 2013). Indeed, the early development of the Internet in China was carried out during this transitional period, and it spearheaded China's post-1989 reintegration into the world economic system. Furthermore, the flashy international branding of the Internet as the "information superhighway" and China's late entry into network development raised concerns among Chinese leaders that the nation might lag behind in developing this vital infrastructure. In response, a foreign direct investment (FDI)-driven, export-oriented ICT

industry was promoted as a "pillar" of the Chinese economy (Hong, 2011). Against this backdrop, China's early network construction was carried out quickly. Four major national networks were established. These comprised two academic networks: the China Education and Research Network (CERNET), under the State Education Commission (SEC) and the China Science and Technology Network (CSTNet), under the Chinese Academy of Sciences (CAS). Two commercial networks were also established: ChinaNET, under the Ministry of Posts & Telecommunications (MPT), and the China Golden Bridge Information Network (ChinaGBN), under the Ministry of Electronic Industry (MEI). Launched during the mid-1990s, these networks competed for influence and soon all gained access to the global network (Tan, 1999). For Chinese leaders, ICT in general and, increasingly, the Internet in particular, were the foundational infrastructure for the country's reconnection to the global economy.

Several actors on the transnational level also played important roles in China's early Internet connection. China's first TCP/IP academic network, the National Computing and Networking Facility of China (NCFC), started in 1989 with partial funding from the World Bank's Key Studies Development Project, which supported the reconstruction of China's science and technology management system (World Bank, 1991). After receiving approval by the US Department of Commerce's for exportation, Cisco's TCP/IP router arrived in Beijing in 1994, which enabled China's full access to the global Internet (IDG News Service, 2004). However, it should not be concluded that China had fully opened its network infrastructure. Instead, the Chinese approach combined both control and openness. Although the four major networks had access to the global Internet, they had to go through a central international gateway that was controlled by the state-owned China Telecom (Tan, 1999).

Having accorded ICT a critical role in the country's reinsertion into the global market, China then addressed the issue of global Internet governance, albeit from a peripheral position. During this stage, state initiatives were paramount in structuring China's approach. Between 1987 and 2001, China had a limited, if not entirely negligible, role in the International Engineering Task Force (IETF), which is the leading organization in Internet standardization. This limited role was largely performed by state-owned research institutions. Li Xing, a Tsinghua professor and the deputy director of the CERNET Center, recounted that at the 2002 IETF meeting, only around 10 Mainland Chinese were present among over 1000 participants. Before 2007, the IETF did not even keep statistics about Chinese attendees (China Education and Research Network, 2013). Of the 2206 requests for comments (RFCs) – key documents for the development of Internet standards – published by the IETF from 1987 to 2001, China co-authored only one, RFC 1922, in 1996. Entitled "Chinese Character Encoding for Internet Messages," RFC 1922 was submitted by Tsinghua University (CNNIC, 2012). This indicates, on one hand, China's early awareness of and willingness to enter global Internet governance. On the other hand, this was China's only RFC in the formative stage of global Internet development, which indicates its then marginal position.

China faced a similar situation in resource allocation, particularly its initial interaction with the domain name system (DNS). Comprising the name space, name registration, and name resolution function, the DNS is the focal point of the Internet. Through the DNS, the Internet has been far more extensively governed than is often recognized (Klein, 2004). The DNS originated in the US and, in 1998, the US government transferred power over the DNS to the Internet Corporation for Assigned Names and Numbers (ICANN), which is a private non-profit organization in California. However, in a separate Internet Assigned Numbers Authority (IANA) contract, ICANN was made formally accountable to the US

Commerce Department. As Mueller (2010) contended, such arrangements signify that with respect to cyberspace, US authorities exercise "unilateral globalism" (p. 62).

As a latecomer, China's first engagement with the DNS involved only the registration of its country code top-level domain name (ccTLD) in 1990. There are two types of Internet top-level domains (TLDs): generic TLDs (gTLDs), such as .com, and ccTLDs, such as .cn. Werner Zorn, a German professor, helped China apply to the Internet Network Information Center for the .cn domain name, and he maintained the .cn root server in Germany until China achieved a full Internet connection (Li & Zorn, 2006). In 1997, the China Network Internet Information Center, a state-owned non-profit organization that manages the .cn name system, was established. Since then, domestic domain name registration has become "a function of the Chinese state" (Ermert & Hughes, 2003, p. 133).

China also made initial forays into ICANN. In 1999, Tsinghua Professor Wu Jianping was elected to ICANN's Address Supporting Organization. The same year, Chen Yin, a deputy bureau director of the Ministry of Information Industry (MII, later MIIT), represented China at the meeting of the ICANN Governmental Advisory Committee (GAC), which is the official, albeit secondary, space for governmental input into ICANN's activities (CNNIC, 2012). However, friction between China and ICANN soon arose. One dispute concerned ICANN's acceptance of Taiwan in the GAC as an independent country, which challenged China's diplomatic stance (Mackinnon, 2009). Another cause of estrangement occurred after the rapid commercialization of domain names during the first dot-com era. In 2001, a Virginia court ordered the Hong Kong- and Shanghai-based company Maya to give up its ownership of the CNNews.com domain name to CNN although it had been obtained legitimately from an accredited Chinese domain name registrar. As Ermert and Hughes (2003) argued, the case extended beyond Maya versus CNN, but it indicated that anyone who registered a domain name on the global Internet somehow "comes under United States jurisdiction, regardless of whether they go through a Chinese, German or South African ICANN accredited registrar" (p. 134).

In addition to its early interactions with the leading organizations in Internet standardization and resource allocation, which, as noted, were headed mainly by state agencies and state-owned research institutions, China also began to formulate a policy position on global Internet governance. On the one hand, for Chinese leaders, information technologies in general and the Internet in particular remained critical tools for economic development. The Ninth Five-Year Plan for State Informatization and the Long-Range Objective of the Year 2010, published in 1997, underscored the Internet's role in stimulating China's modernization (SCIO, 2010). In 2002, the then Chinese President Jiang Zemin (2002) affirmed to the 16th National Congress that "IT application is a logical choice if industrialization and modernization of our country are to be accelerated," and therefore "we must give priority to the development of the information industry and apply IT in all areas of economic and social development." However, the Chinese leadership had also become concerned about conflict between multiple rival state agencies in network operations. For example, in 2000, in addition to the long-standing turf war between the MPT and MEI, the military-controlled CGWNet, the Ministry of Foreign Trade and Economic Cooperation sponsored CIETNet and the Ministry of Railway-operated CRNET all joined the competition and started to provide network services (Harwit, 2008). In a move to centralize and reorganize its Internet governance system, the State Council established the National Joint Conference on Economic Informatization in 1994, which evolved into the State Council's Steering Committee on National Information Infrastructure. In 1998, the latter was integrated into the newly established MII (Tan, 1999).

At the same time, China's peripheral position in global cyberspace also stirred concerns among its leaders. At the 16th World Computer Congress, Jiang (2000) expressed uneasiness that the world was increasingly divided between the "information rich" and "information poor" and that, because developed countries enjoyed superior information technology, the continuing diffusion of the Internet was not alleviating this discrepancy. This concern tinged China's response to some attempts to internationalize Internet domain names. In 2000, VeriSign, the American company in charge of the .com domain name, announced a plan to start developing technical standards and registering domain names in non-Roman characters, or "internationalized" domain names, on a trial basis. This plan also included the standardization and registration of Chinese-script domain names, which potentially was an extremely lucrative market. The CNNIC countered with a rival system under the .cn extension. The MII also published a circular that required any entity intending to enter the Chinese domain name market to get approval from the MII. As Xue (2004) observed, for Chinese leaders, keeping a Chinese domain name under China's control was driven by not only economic concerns but also factors as nationalism, consumer protection, content regulation, and national security. Moreover, although VeriSign eventually withdrew from the Chinese market, such initiatives, especially those involving the disproportionate power of US corporations in global cyberspace, continued to raise anxieties. The wariness of Chinese leaders assumed a political form when Wu Jichuan, then MII minister, declared at the Pacific Telecommunication Conference that the uneven information flow had "challenged" the "cultural traditions, moral standards and values" of developing countries, since the majority of Internet content was in English and produced in developed countries (Ermert & Hughes, 2003, p. 136). These concerns escalated to the point that, in 2001, China stopped sending representatives to the ICANN GAC meeting.

To this point, the Chinese government, represented by state agencies like the CNNIC and state-owned research institutions, was the central actor in shaping China's position regarding global Internet governance, and domestic business players were largely silent. The government, however, still did not speak with a single voice. Rival agencies (e.g., the MEI and MPT) competed for influence and control. Moreover, China's position was already complicated by transnational forces. Its early network connection relied heavily on US state agencies (e.g., Department of Commerce) and US companies (e.g., Cisco), and the state's insistence on a Chinese domain name system controlled by China conflicted with the offerings of the US corporation VeriSign. These complex interactions between China and a US-centric Internet soon would be elevated to a global stage.

2002–2009: selective participation in the existing governance regime

Entering the twenty-first century, China experienced a series of political–economic changes that molded its emergent position regarding the global Internet. First, when Jiang passed the presidency to Hu Jintao in 2002, Chinese leaders increasingly recognized the vulnerabilities of the export- and FDI-driven path of the 1980s and 1990s, and they feared that China would continue to occupy a low position in the global commodity chain. Accordingly, the policy focus started to shift from accentuating informatization in all economic fields to boosting the development of proprietary technology and standards in key areas, including the IT industry (Zhao, 2010). Specifically, an agreement forged by Chinese political and economic elites highlighted "indigenous innovation" in national industrial policy. From the report to the 16th Party Congress in 2002, to the 11th Five-Year Plan for National Economic and Social Development in 2005, to the Medium- and Long-term National Plan

for Science and Technology Development in 2006, the state leadership openly called for China to become an "innovation-oriented nation" (People's Daily, 2006).

Second, China's accession to the WTO initiated a new stage in its integration into the global economy. In addition to accelerating the opening of its domestic market, the state also officially inaugurated its "going-out" initiative in 2001 with a series of policies designed to encourage indigenous firms to penetrate the extraterritorial market (Shambaugh, 2013, p. 175). China's relationship with the global economy therefore entered a new phase by expanding from "attracting-in," or drawing in FDI investment into its territory, to "going-out," or promoting China's outward capital flow (Ning, 2009). As a result, China's outward FDI stock surged from $28 billion in 2000 to $230 billion in 2009 (UNCTAD, 2010, p. 175).

During this policy transition, significant changes occurred in China's Internet industry. Apart from an increasingly powerful equipment manufacturing sector spearheaded by Huawei and ZTE, the state-owned network operating sector had also undergone radical corporate restructuring in the face of the WTO pressure, engendering a group of large commercial operators (Harwit, 2008). Moreover, interacting extensively with foreign investment capital, China's Internet application and service sector started to take off. All three of China's domestic Internet giants were born: Tencent in 1998; Alibaba in 1999; and Baidu in 2000.

China's further entry into the global market, the emergence of a group of domestic business power-holders, and the shifting emphasis of policy to "indigenous innovation" gave rise to a mixed approach to global Internet governance. On one hand, China became increasingly outspoken in its critique of the unilateral US control of the DNS. On the other hand, it also displayed limited acquiescence to the established governance system. Behind China's ambivalent position were complex power dynamics. Various governmental or quasi-governmental organizations and newly emerging business units selectively participated in the existing regime and interacted with different players in the global Internet community.

The CNNIC was still at the forefront in Internet standardization, but a small group of corporate actors, such as Huawei, also began to emerge. Although China's influence within the IETF community remained limited, beginning in 2004, the nation's RFC publication record burgeoned (see Table 1). That year, in collaboration with the Japan Network Information Center and the Korea Network Information Center, the CNNIC published RFC 3743 – China's second RFC. China then published three RFCs in 2006, two in 2007, six in 2008 and six by the end of June 2009, of which four reached the standard track (Cao, 2010). Although this was a fraction of the total number of annual RFCs, this increase indicated

Table 1. RFCs led or participated by China (1996–2009).

Year	Number of RFCs[a]	Leading or participating organizations
1996	1	Tsinghua (1)
2004	1	CNNIC (1)
2006	3	CNNIC (1), Huawei (1), China Mobile (1)
2007	2	Tsinghua (1), Huawei (1)
2008	6	Huawei (3), China Mobile (2), Tsinghua (1), CNNIC (1)
2009[b]	6	Huawei (5), China Mobile (1), Tsinghua (1)

[a]Some RFCs may have multiple authors
[b]the data are updated to 30 June 2009.
Source: Cao (2010).

that China was enlarging its role within the crucial Internet standardization process. As Suttermeier and Yao (2004, p. 3) suggested, a complex "neo-techno-nationalism," in which national interests were pursued through "leveraging opportunities provided by globalization," became prominent in China's post-WTO technology strategy. This approach necessitated a certain compliance with global norms. The then CNNIC Director Mao Wei advised, "to set up standards, we need to get into the standard setting process first" (Beijing Youth Daily, 2006).

In addition to participating in the IETF, China also vigorously promoted the development and adoption of several indigenous technological standards. In carrying out these domestic experiments, its growing Internet industry moved to a more prominent position. In 2007, for example, after China decided to advocate its indigenous TD-SCDMA (Time Division Synchronous Code Division Multiple Access) as the national standard, China Mobile, one of the world's largest mobile operators, launched trial services of TD-SCDMA in eight cities, which significantly boosted its commercial application (Zhan & Tan, 2010).

However, such pointed attempts to introduce indigenous standards met with resistance from state and business players, both domestic and international. The case of Wireless Local Area Network Authentication and Privacy Infrastructure (WAPI), a native Chinese standard alleged to improve the security weakness of the Wi-Fi standard, is illustrative of this conflict zone. In 2003, when the state announced its plan to require all wireless devices on the Chinese market to install WAPI, a campaign was organized by foreign governments (e.g., the US government) and transnational companies (e.g., Intel and Broadcom) to oppose this initiative. As Kennedy (2006) argued, this "high-tech standard war" occurred not only because of the advanced industrial countries' uneasiness about China's rise as a high-tech power and their unwillingness to share their advantage with newcomers, but also because this new standard seriously challenged the vested economic interests of a powerful coalition of transnational companies and their Chinese partners. Zhao (2010) further pointed out that the divergent interests among domestic state agencies and business players also weakened the state's agenda. For example, the promotion of WAPI was more in line with the interests of the state's military and national security division (e.g., the PLA) than those of its commerce and trade division, which has close ties with transnational political–economic forces. Moreover, because the standard was developed and owned by a small inland firm, Jietong (IWNCOMM), well-established heavyweights such as Huawei and ZTE showed little interest in supporting it. When China tried to promote WAPI internationally, it faced additional geopolitical pressure. In 2004, the US embassy denied visas to some important technical members of China's delegation who were seeking to attend the Joint Technical Committee, Subcommittee 6, of the International Organization for Standardization and the International Electrochemical Commission (ISO/IEC JTC1 S6) in Florida, thus preventing them from joining the discussion of WAPI as an international standard. In 2005, the WAPI application was moved off the agenda of a follow-up meeting of ISO/IEC JTC1 S6, which triggered a "walkout" protest by the Chinese delegation (Qiu, 2010). As a visible and complex example, it indicates China's continuing efforts to increase its power within the Internet standardization community and the resistance – both inside and outside China – this stance engendered.

With regard to resource allocation, during this period the Chinese state and the DNS were estranged; the state not only stopped attending the ICANN GAC meetings but also developed a series of domestic initiatives to boost its control over the governance of Internet resources. However, different governmental and quasi-governmental organizations of China remained active in their interaction with the existing system.

Two highly visible examples reveal the state's ambition to gain more control over Internet resource allocation: the development of Internet Protocol version 6 (IPv6) and the promotion of the .cn domain name system. Backed by strong concerns about the uneven distribution of Internet resources among developing and developed countries – a situation that was widely framed by the Chinese media as "Stanford University has more internet addresses than China" (Huang & Feng, 2008) – the state strenuously advocated the development of a national network around a new Internet Protocol, IPv6. IPv6 was claimed to have a number of advantages over the current IPv4 protocol, especially its ability to provide an almost unlimited number of Internet addresses. As Zhao (2010) argued, because of the US's initial hesitation to promote this new version of Internet protocol, Chinese leaders saw the development of IPv6 as a "historical opportunity" to gain the technological leadership of digital networks as well as to "rectify the glaring disparity in the distribution of IP addresses" (p. 279). In 2003, a series of state-led initiatives aggressively pushed forward the technological development and commercial application of IPv6 and related products (e.g., Internet routers) in the hope of gaining a growing share of the global network market (DeNardis, 2009, p.109). In 2006, CERNET2, the core IPv6-based network that linked 25 universities across the country, announced its formal operation. As the world's largest pure IPv6 network, CERNET2 was portrayed in the Chinese media as a landmark of China's impact on the global Internet. One article even proclaimed that the "future of the Internet [had begun] to take shape" (Li, 2006).

In addition to the development of IPv6, China also strongly promoted the registration of .cn domain names. This move became urgent after the Taiwan earthquake in December 2006, which destroyed some undersea cables connecting the US and East Asia. At the time, almost half the domain names in China were registered under .com and relied on US-based servers for their Internet connection (Ning, 2007). The earthquake therefore severely disrupted China's domestic Internet operations. In 2007, with support from the MII, the CNNIC announced a plan to reduce the yearly registration price of .cn domain names dramatically from around 300 yuan to 1 yuan per name. Within one year, the number of .cn domain names soared from 1.8 million to 8.45 million, which made .cn the second largest ccTLD in the world (People's Posts and Telecommunications News, 2008). In a statement, the CNNIC declared that the "wider use of the '.cn' service [would] improve our Internet independency and [would be] safer for Chinese website operators" (Ning, 2007).

However, these state-led initiatives revealed only one aspect of China's multifaceted approach. Although the Chinese state stopped sending government representatives to the ICANN GAC meeting from 2001 to 2009 and proactively carried out these projects at home, the interaction between ICANN and other actors in the Chinese Internet community continued. For example, in 2003, Qian Hualin, a research fellow of the CAS, was elected to the ICANN Board of Directors to serve a three-year term. The CNNIC and the Internet Society in China (ISC) also jointly hosted ICANN's 2002 meeting in Shanghai (CNNIC, 2012). The state's acquiescence to these continuing interactions revealed the underlying ambivalence and contradictions of China's strategies.

Accompanying the changes occurring in technical standardization and resource allocation, a public policy position toward global Internet governance also began to cohere around the WSIS. This position was marked by the dichotomous mixture of resistance and accommodation.

For China, the most pressing issue was unilateral US control over the DNS. During the WSIS, China actively sought to internationalize the governance of the DNS by placing it under an international organization such as the ITU. China insisted that the governance of the domain name system should be prioritized over other public policy issues

pertaining to the Internet. China's argument was that the Internet belonged to the international community and that critical Internet resources were public resources belonging to the world. Therefore, the DNS should be governed jointly by developing and developed countries through intergovernmental organizations such as the United Nations (China's comments, 2005).

However, China's position was more complex than a simple forswearing of the existing system and a call to have the UN "take over" the Internet, as some commentators declared (Downes, 2012). The further integration of China into the global system and the development of the emerging Chinese Internet industry pressured the state to participate in, or to make room for other Chinese entities to participate in, the existing governance institutions. Indeed, both Huawei and ZTE were major sponsors for the WSIS at Tunis. This ambivalence is evident in China's policy discourse where the Chinese state, to a limited extent, acknowledged the existing multi-stakeholder Internet governance model. In its report to the Working Group on Internet Governance (WGIG), a committee set up to investigate and compose a report on Internet governance during the two phases of the WSIS, China suggested that "sovereign governments and governmental organizations should play leading roles under the United Nations' framework while guaranteeing the broad participation of all the other stakeholders" (China's comments, 2005). This complex stance was also reaffirmed by Hu Qiheng, the Chinese representative at the WGIG. As the President of the Internet Society in China (ISC), a non-governmental organization of more than 400 industrial and academic members, Hu was purported to represent the interests of non-state actors. However, because the ISC is not associated with the global non-profit Internet Society but is supported by the MII and Hu herself was once the vice president of the CAS, her close linkage to the Chinese government cannot be ignored. These factors complicated Hu's position. In a domestic interview, Hu pointed out that there were several layers of global Internet governance. While the governance of critical Internet resources needed to be arranged multilaterally based on the equal participation of states, the governance of Internet content and its application required the collaboration of governments, businesses, and civil society (Li, 2005).

During this stage, as nascent domestic business units became visible, China's approach to global Internet governance demonstrated considerable ambivalence. The interests of these Chinese business players, however, were not always in line with the official position of the Chinese government. The WAPI case suggests that vested economic interests sometimes could lead domestic companies that were in cooperation with foreign governments and transnational businesses to work against the state's agenda. The interaction of various governmental and quasi-governmental organizations and emerging business units with different players in the global Internet governance community further complicated China's relationship with the global Internet.

2010–present: integration and revision

The end of the new millennium's first decade was marked by a flashpoint of geopolitical conflict between China and the US in global cyberspace. In 2010, Google announced its plan to stop censoring results in Mainland China, as well as the possibility that it would withdraw completely from the Chinese market. In supporting Google's position, then US Secretary of State Hilary Clinton implied that the Chinese government was building a new virtual Berlin wall, which was entirely against the US's agenda of "Internet freedom" (Clinton, 2010). In response, China strongly insisted that it had the world's "most active development of the Internet" and that the US should stop exercising "information

imperialism" in China (Bodeen, 2011). The Chinese State Council also issued a policy White Paper to elaborate its Internet governance approach for the first time. A more assertive and sophisticated position therefore began to surface, indicating that China's relationship with the global Internet had entered a new stage. This time, however, domestic business actors assumed an increasingly vital role in structuring China's approach.

China's continuing efforts in sharpening its stance toward global Internet governance was remarkable at a time when China and ICTs constituted two of today's "unsurpassed poles of growth" during the protected "digital depression" (Schiller, 2014, p. 231). Not only has China maintained an impressive growth rate, it has also turned the Internet into the "dragonhead" of its economy. On the political level, in addition to the transition in domestic leadership, more proactive and complex forms of Internet governance began to take shape (Yang, 2014). The establishment of the State Internet Information Office (SIIO) in 2011 aimed at consolidating Internet content regulation functions that were previously spread across often-competing governmental branches. This Information Office, directed by Lu Wei, a senior propaganda officer, was then restructured into a ministry-level agency, the Cyberspace Administration of China (CAC). In 2014, another high-level state apparatus, the Central Cyber Security and Informatization Leading Group, was formed under President Xi Jinping and brought together high-ranking officials from varying state units, including representatives from economic agencies, political and ideological units, and military departments.

On the economic level, the development and global expansion of China's Internet industry has also become a top priority for the government. The latest manifestation is the "Internet Plus" strategy, which was unveiled by Premier Li Keqiang in 2015. The strategy not only includes plans to deepen links between the Internet and almost all sectors of the Chinese economy, but also commits the government to the active support of Chinese Internet companies as they expand their reach in global cyberspace. However, the initiative could not have taken hold without the enthusiastic endorsement of China's Internet businesses. Some have argued that the name of this strategy – "Internet Plus" – was actually adopted from a 2013 speech by Tencent's CEO Pony Ma (Xu, Li, & Liang, 2015). The formulation of this high-level state initiative therefore reveals only the "tip of the iceberg" of the complex state–capital interactions in China's Internet policymaking process.

Major changes also occurred in the international system. In 2013, Snowden's disclosures of the massive US Internet surveillance system intensified longstanding concerns about the dominant role of the US in global cyberspace. In the international community, both German Chancellor Angela Merkel and Brazil President Dilma Rousseff took strong public stands. Major Internet governance organizations, including ICANN and IETF, also issued statements that expressed their uneasiness. In response to escalating pressure, the US Commerce Department announced its intention to transfer its control over the DNS to the global multi-stakeholder community. A series of regional and international meetings were convened in reaction to these events, and attempts were made to explore solutions to this policy transition, including the Brazil-sponsored NETmundial conference in 2014. Although the specific outcome of this transition remains uncertain at the time of writing, it seems to be clear that the US-centric global Internet governance regime has been destabilized.

China kept a relatively low profile during these tumultuous meetings. For example, it sent only a bureau-level, not a ministerial-level, representative to NETmundial (Zhao, 2015). However, China's role has become increasingly visible throughout global cyberspace. This is understandable, because China now has not only the world's largest Internet population but also a thriving Internet industry. In 2014, four of the ten largest Internet

firms in market capitalization were based in China: Alibaba; Tencent; Baidu; and JD.com (Dou, Osawa & Ma, 2014). The massive $25 billion initial public offering (IPO) of Alibaba constituted the highest-profile episode of the global expansion of the Chinese Internet.

During this stage, the global Internet governance ecosystem gradually began to respond to China's growing influence. The Internet standardization community is a salient example. In 2010, the 79th IETF Meeting was held in Beijing, which was the first to be held in Mainland China. This event could be viewed as a reaction to the fast-growing Chinese community of network technical experts. Of the 1,200 engineers at the meeting, only the US sent a number greater than China did (CNNIC, 2010). The number of RFCs formulated by Chinese experts also increased. IETF Chair Jari Arkko estimated that China would soon be the most prolific RFC contributor after the US (Arkko, 2013).

Concurrent with this boost in public engagement, Chinese private players also became more prominent. For example, in 2010, two experts from Huawei, China's largest network equipment manufacturer, were appointed, respectively, as Internet Architecture Board (IAB) member and Transport Area Director (AD). These new appointments, combining with existing positions held by Huawei engineers, formed a strong representation of the homegrown Chinese company at the IETF. By the end of 2010, Huawei had submitted to the IETF a total of 38 RFCs, 85 working group drafts, and 286 active drafts, which covered a wide range of network standards. The company had become one of the fastest-growing contributors to standards in the IP field (Yao, 2010). Thus, the Chinese private sector, like the Chinese state, had taken on an increasingly active approach to maximize its interests in the present regime.

China's re-engagement with the ICANN-centric DNS further revealed this proactive and complex position. In 2009, for the first time since 2001, the Chinese state sent a deputy divisional director of the MIIT, Cui Shutian, to the ICANN GAC meeting. As Mackinnon (2009) pointed out, the key background of China's reconnection with ICANN was the introduction of internationalized top-level domain names as well as the opening of a new set of gTLDs in addition to existing ones. For China, this meant, on the one hand, that a Chinese ccTLD could be created to represent China in the global Internet landscape (i.e., .zhongguo). On the other hand, this also meant that potentially new trademark gTLDs, such as .alibaba and .taobao, would be open for application. Because of China's expanding Internet market and the growing power of its private players, it was paramount for the state to be able to speak for their interests during this major reform, during which a considerable quantity of critical Internet resources would be released. Moreover, the existence of a substantial number of Chinese domain names under .cn and China's active participation in the standardization of Chinese domain names also strengthened the state's position in the reform process.

ICANN welcomed China's return by offering it an accelerated process to create ccTLDs in Chinese. In 2010, ICANN approved the establishment of Chinese ccTLDs in both simplified and traditional Chinese characters. Similar to the .cn system, the new Chinese ccTLDs would be managed by the CNNIC. The expedited approval and allocation of the new Chinese ccTLDs to the CNNIC could be construed as a compromise by ICANN to ensure China's acquiescence to the existing governance mechanism. As Mueller (2011) pointed out, during the new ccTLDs reform, the US government and ICANN appeased antagonistic states, such as China and Russia, by granting them "an economically valuable and politically powerful gift in order to keep them happy with the ICANN regime" (p. 184).

However, by no means did the recent re-engagement suggest that China had become comprehensively aligned with the current scheme. Frictions certainly persisted. However,

unlike China's previous vigorous opposition to the renewal of the Internet Governance Forum, which was the WSIS's successor to continue the multi-stakeholder dialog about global Internet governance, the state tentatively embraced the forum, aiming to bring it under the oversight of the UN (Mueller, 2011). Thus, China seems to have struck a more conciliatory tone than it has had in the past.

State agencies, however, were not the only interactive links between China and ICANN. Private players also increasingly assumed a critical position. The latest indication of this change is the council election of the NETmundial Initiative, a multi-stakeholder global Internet governance platform co-sponsored by ICANN, the Brazilian Internet Steering Committee and the World Economic Forum. During its inaugural meeting in June 2015, Alibaba's founder, Jack Ma, was elected as one of the five co-chairs of the council in addition to four other high-profile figures, including ICANN's CEO, while SIIO/CAS director Lu Wei participated as a council member (NETmundial Initiative, 2015). Hence, China is now actively engaged with ICANN through not only governmental agencies or quasi-governmental organizations but also business actors, similar to the realm of technical standardization.

During this stage, an assertive Chinese policy position has also begun to unfold. This new attitude has been manifested both through a key policy document, the Internet White Paper, and an international conference, the WCIT-12. With the growing interpenetration between China and its extraterritorial cyberspace, the state increasingly situated its attempts to rebalance the power structure of the global Internet *within* the existing governance system.

On one hand, partly in response to the American cyber-freedom agenda, Internet sovereignty was raised to the top level of China's policy discourse. The Internet White Paper declared, "Within Chinese territory the Internet is under the jurisdiction of Chinese sovereignty. The Internet sovereignty of China should be respected and protected" (SCIO, 2010). At the WCIT-12, the Chinese government, in alliance with other states, proposed to define the Internet as the "international conglomeration of interconnected telecommunication networks" in which sovereign states possess the ultimate power over each "national Internet segment" (WCIT, 2012). An extension of this policy discourse was China's consistent preference for the UN system to take the lead in global Internet governance. In the Internet White Paper (2010), China recommended that "the role of the UN should be given full scope in international Internet administration." This position is not surprising, because individual nation-states usually have more power in the UN system than in organizations that allow different forms of weighted voting. In addition, China is one of the five permanent members of the UN Security Council. China's claim to "Internet sovereignty" might have been designed to help the government defend its own questionable Internet censorship within its borders. However, it also served as a stepping-stone for the Chinese state in its move to be a legitimate player in the global communications system and to press for a reconstitution of the US-dominated global Internet.

On the other hand, although the popular media discourse continued to portray the Chinese position as a reflex of heavy-handed state domination, this view was belied by the reality of an increasingly powerful Chinese Internet industry that had introduced important extra-governmental actors into the existing Internet governance structure. This complex development is observed in both the characteristics of China's engagement with the existing system and the state's policy discourse. The state no longer served as the only major Chinese participant in governance institutions; instead, it appeared to be making increased room for corporate actors, notably Huawei and Alibaba. In the policy discourse, the existing governance arrangement was recognized by the Chinese government; its

Internet White Paper went as far as to recommend that the ideal framework for global Internet governance, especially the administration of the critical Internet resources, be "established on the basis of the current management mode" (SCIO, 2010). Similarly, at the WCIT-12, although China joined Russia and several other governments in the attempt to expand the ITU's role in Internet governance by adding articles related to the "Internet" (e.g., cyber security) to its treaty, the proposal still reaffirmed that "Internet governance shall be effected through the development and application by governments, the private sector and civil society" (WCIT, 2012).

China's hosting of the first World Internet Conference is a notable example of this assertive and sophisticated approach. Entitled "An Interconnected World Shared and Governed by All," this 2014 summit could be viewed as the proactive attempt by the state to enlarge China's role in post-Snowden cyberspace and, as a *China Daily* article put it, have "its voice heard" (Zhao & Cao, 2014). What constitutes "China's voice," however, needs careful clarification. On one hand, in his congratulatory message, President Xi continued to propose "an international Internet governance system of multilateralism, democracy, and transparency." On the other hand, the conference was far more inclusive than pure "multilateralism." The attendees comprised not only delegates from state agencies and leaders from key Internet institutions but also high-level executives from both domestic and foreign Internet corporations, such as Alibaba's founder Ma and Facebook Vice President Vaughan Smith. The same *China Daily* article also quoted Li Yuxiao, professor of Internet governance at Beijing University of Posts and Telecommunications, as highlighting the role of Internet companies in structuring China's approach. For Li, "Chinese Internet-based companies, not only the government, have to take their shared responsibility in developing facilities, operating systems, and applications as concrete steps to carry out China's strategy on the Internet" (Zhao & Cao, 2014).

During the third stage, domestic business players acquired an increasingly critical position in China's approach toward global Internet governance. For example, Huawei emerged as a significant player in Internet standardization while other companies, such as Alibaba, also quickly acquired international stature. While the state continues to sharpen its approach toward the global Internet, relationships between the state and these substantial units of capital cannot be assumed. Will Chinese capital and the Chinese state work together to maximize their shared interests within the US-centric cyberspace? Alternatively, will significant conflict characterize the opaque relationship between the state and capital, both domestically and transnationally?

Discussion and conclusion

More than three decades ago, Ithiel de Sola Pool (1983) predicted that a process of convergence would increasingly blur the boundaries between different modes of communication. The Internet is at the center of this process. Once discrete and specialized fields of communication policy now all demand reference to the Internet, which for many years was considered a creation of the US. However, Snowden's revelations contributed to altering the legitimacy of this arrangement. With the changing geopolitics of a post-Snowden cyberspace and the emergence of substantial players in the global south, an Internet policy that was mostly established by the US for the world came into question (Bhuiyan, 2014; Schiller, 2014). Hence, scholars in the field of communication policy needed to become aware of and concerned about other actors, among which China is at the forefront.

The major contributions of this study, therefore, are twofold. On one hand, it contributes to the current scholarly and policy debates on global Internet governance by providing

a much-needed historical perspective on one of its major players – China. By analyzing and clarifying China's evolving stance toward the governance of global cyberspace over the past three decades, it tested the adequacy of the conventional framework to capture and interpret this approach and affirmed the need for an alternative model. It argued that the conventional "cyber sovereignty" framework focuses primarily on political control and therefore generally reduces China's position to that of a heavy-handed authoritarian state motivated by the drive to elevate governments and intergovernmental organizations as the sole governors of the global Internet. The historical record revealed that China's approach has been more complex than the conventional framework allows and that it is both built on and different from the US-centric, market-oriented Internet governance scheme that predominates today. China's initial engagement with the global Internet in the 1990s spearheaded its interconnection with the world market. Political and economic forces inside and outside China played critical roles in the state's early efforts in network building and Internet connection. In the Internet's nascence, China participated in the US-dominated governing institutions from a very peripheral position and soon clashed with them. The 2000s witnessed heightened alienation between the Chinese state and the governing mechanisms of the global Internet. China's efforts to rebalance the system were supported by its selective participation in existing governance entities and a series of domestic experiments, and epitomized in its position at the WSIS. After the 2010 battle with Google, China, which had the world's largest online population and a thriving Internet industry, started to integrate fully into the current system by taking the proactive and sophisticated approach of revising it internally.

On the other hand, recognizing the inadequacy of the conventional framework, this study drew on the theoretical framework of critical political economy of communication to introduce an alternative model. It therefore also provided an analytical tool for communication scholars and policymakers to interrogate the rationale for, as well as the contradictions and contingencies of, China's approach. It argued that China's policy formation toward global Internet governance is best understood as the product of multifaceted interactions among a group of power-holders, including different state agencies and business units in both domestic and transnational contexts. First, as this and other studies (Xia, 2012b; Yang & Mueller, 2014) clarified, competing interests among different domestic state agencies have significantly influenced China's governing approach. China's effort to centralize its Internet policymaking system may be seen as the result of this intra-state struggle. Second, nationally headquartered business units also emerged as important players and used their access to the state to further their own visions of global Internet governance. There is every reason to expect that other Chinese companies are joining Huawei and Alibaba in this regard. Third, China's stance is not only influenced by domestic players but also mediated by the multifaceted interactions among state agencies and business units on the transnational level. As the WAPI case illustrates, under certain circumstances, transnational and domestic business players might work together to oppose China's attempts to rebalance the global Internet. These multifaceted transnational power dynamics, which encompass both conflict and cooperation, among different state and business actors constitute an appropriate analytic focus in the study of the evolving Chinese approach toward global Internet governance.

When ideological abstraction is set aside, the actual substance of China's approach is revealed to involve several different players on the transnational level. This study demonstrated two features – the state and capital – that will be key in future research. Admittedly, it leaves the contributions of other specialized groups, such as elite academic scientists and technologists, for discussion at another time.

It is still too early to predict China's future relationship with the global Internet, because for to many fundamental policy questions China has not yet developed a comprehensive approach. However, it is probably safe to say that in the near future China will continue to demonstrate a dichotomous mixture of resistance and compliance in its strategies. On the one hand, at the 2014 China–US Internet Industry Forum, Lu Wei, China's Director of the SIIO/CAS, openly called for "mutual governance of cyberspace" because of "the deep fusion and high mutual stakes" between the two countries in the Internet industry (Chen, 2014). If this assertion is any indication, we must not discount the possibility that the US and China could share policy decisions in some areas, such as allowing the Internet companies based in each country to operate transnationally. On the other hand, this study is a reminder that we cannot dismiss the growing conflict among forces inside and outside China regarding the vision that should structure the global Internet. As this study has demonstrated, different state agencies and business units not only cooperate but also compete at particular sites and specific historical moments in this volatile and important area.

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Notes

1. The term "Internet governance" is still debated by scholars (DeNardis, 2013). This study uses "governance" rather than "management" to reflect the inseparable linkage between the "technical management" and "regulatory control" that are embedded in the Internet policymaking process (Mueller, 2002, p. 7–10).
2. Multi-stakeholderism is a contentious concept. Mueller (2010) argued that although the multi-stakeholder model identifies government, the private sector, and civil society as the actors in the decision-making process, it "does not determine how power is distributed among these groups or how much weight they are given in decision-making processes" (p. 8).
3. The documents of the WSIS are available at http://www.itu.int/wsis/, while WCITleaks (http://wcitleaks.org/wcit/) has published some key documents of the WCIT-12.
4. There are several different taxonomies of Internet governance (e.g., DeNardis, 2013). In particular, the WGIG has identified four key policy clusters and several policy issues. John Mathiason (2008, p. 19) demonstrated how these policy issues could be organized into the three-part functions used in this study.

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